

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Gabriele NELLES et al.

U.S. Serial No.: Filed Concurrently Herewith

Title of Invention: A METHOD OF FORMING A CELL PATTERN ON A SURFACE, CELLULAR NETWORKS AND TISSUES BASED THEREON

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PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Box Patent Application (35 U.S.C. 111)
Washington, D.C. 20231

Sir:

Before the issuance of the first Office Action, please amend the above-identified application as follows:

IN THE CLAIMS:

Please cancel claims 39 and 40.

Please amend claims 3, 4, 6, 8, 12, 17-20, 22, 24, 25 and 28-38 as follows:

3. (Amended) A method according to claim 1 characterised in that said whole tissue is derived from an organ selected from the group comprising brain, liver, kidney, muscle, skin, bone, lung and heart.
4. (Amended) A method according to claim 1 characterised in that said cells are organ slices.
6. (Amended) A method according to claim 1 characterised in that said pattern of cell-growth promoting molecules and/or cell-growth inhibiting molecules attached on said prepatterned surface allows for the guided growth and migration of cells.
8. (Amended) A method according to claim 1 characterised in that said pattern of cell-growth promoting molecules and/or cell-growth inhibiting molecules has a structure with lines and nodes.
12. (Amended) A method according to claim 1 characterised in that said pattern of cell-growth promoting molecules and/or cell-growth inhibiting molecules is formed by at least one layer of a substance selected from the group comprising polypeptide, polyethyleneimine and polystyrene.
17. (Amended) A method according to claim 15 characterised in that said transfer step further comprises the sequence:
- d) releasing said pattern of cells from said matrix,
 - e) removing said matrix from said pattern of cells.
18. (Amended) A method according to claim 16 characterised in that said matrix is a cell-compatible matrix.
19. (Amended) A method according to claim 16 characterised in that said matrix is a matrix composed of a material selected from the group comprising agarose, fibrin, collagen and cellulose.
20. (Amended) A method according to claim 16 characterised in that said matrix is a matrix composed of a curable material.

22. (Amended) A method according to claim 16 characterised in that said matrix is a matrix composed of a material capable of forming a gel.

24. (Amended) A method according to claim 15 characterised in that said second surface is selected from the group comprising surfaces of bioelectrical devices, sensors, electrical components, tissues, implants and transplants.

25. (Amended) A method according to claim 16 characterised in that said embedding is achieved by

- aa) partially or fully covering said pattern of cells with said matrix in a liquid form, and
- ab) forming said matrix.

28. (Amended) A method according to claim 17 characterised in that said releasing said pattern from said matrix is achieved by enzymatic degradation and/or lowering the temperature below the gel-transition temperature.

29. (Amended) A pattern of cells producible by a method according to claim 1.

30. (Amended) A pattern of cells on a surface producible by a method according to claim 1.

31. (Amended) A pattern of cells producible by a method according to claim 15.

32. (Amended) A pattern of cells on a surface producible by a method according to claim 15.

33. (Amended) An artificial tissue producible by a method according to claim 1.

34. (Amended) An artificial tissue on a surface producible by a method according to claim 1.

35. (Amended) An artificial tissue producible by a method according to claim 15.

36. (Amended) An artificial tissue on a surface producible by a method according to claim 15.

37. (Amended) A combination of patterns of cells according to claim 29.

38. (Amended) A combination of artificial tissues according to claim 33.

REMARKS

Claims 1-38 remain in the application. Claims 39 and 40 have been cancelled. Claims 3, 4, 6, 8, 12, 17-20, 22, 24, 25 and 28-38 have been amended to eliminate multiple dependencies. Attached hereto is a marked version of the changes made to claims 3, 4, 6, 8, 12, 17-20, 22, 24, 25 and 28-38 by the current amendment. The attached page is captioned **“Version with markings to show changes made.”** The filing fee has been calculated based upon these amendments to the claims.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE**In the claims:**

3. (Amended) A method according to claim 1 ~~any of claims 1-2~~ characterised in that said whole tissue is derived from an organ selected from the group comprising brain, liver, kidney, muscle, skin, bone, lung and heart.
4. (Amended) A method according to claim 1 ~~any of the preceding claims~~ characterised in that said cells are organ slices.
6. (Amended) A method according to claim 1 ~~any of the preceding claims~~ characterised in that said pattern of cell-growth promoting molecules and/or cell-growth inhibiting molecules attached on said prepatterned surface allows for the guided growth and migration of cells.
8. (Amended) A method according to claim 1 ~~any of claims 1-7~~ characterised in that said pattern of cell-growth promoting molecules and/or cell-growth inhibiting molecules has a structure with lines and nodes.
12. (Amended) A method according to claim 1 ~~any of the preceding claims~~ characterised in that said pattern of cell-growth promoting molecules and/or cell-growth inhibiting molecules is formed by at least one layer of a substance selected from the group comprising polypeptide, polyethyleneimine and polystyrene.
17. (Amended) A method according to claim 15 ~~any of claims 15-16~~ characterised in that said transfer step further comprises the sequence:
 - d) releasing said pattern of cells from said matrix,
 - e) removing said matrix from said pattern of cells.
18. (Amended) A method according to claim 16 ~~any of claims 16-17~~ characterised in that said matrix is a cell-compatible matrix.

19. (Amended) A method according to claim 16 ~~any of claims 16-18~~ characterised in that said matrix is a matrix composed of a material selected from the group comprising agarose, fibrin, collagen and cellulose.
20. (Amended) A method according to claim 16 ~~any of claims 16-18~~ characterised in that said matrix is a matrix composed of a curable material.
22. (Amended) A method according to claim 16 ~~any of claims 16-18~~ characterised in that said matrix is a matrix composed of a material capable of forming a gel.
24. (Amended) A method according to claim 15 ~~any of claims 15-21~~ characterised in that said second surface is selected from the group comprising surfaces of bioelectrical devices, sensors, electrical components, tissues, implants and transplants.
25. (Amended) A method according to claim 16 ~~any of claims 16-24~~ characterised in that said embedding is achieved by
- aa) partially or fully covering said pattern of cells with said matrix in a liquid form, and
 - ab) forming said matrix.
28. (Amended) A method according to claim 17 ~~any of claims 17-27~~ characterised in that said releasing said pattern from said matrix is achieved by enzymatic degradation and/or lowering the temperature below the gel-transition temperature.
29. (Amended) A pattern of cells producible by a method according to claim 1 ~~any of claims 1-14~~.
30. (Amended) A pattern of cells on a surface producible by a method according to claim 1 ~~any of claims 1-14~~.
31. (Amended) A pattern of cells producible by a method according to claim 15 ~~any of claims 1-28~~.

32. (Amended) A pattern of cells on a surface producable by a method according to claim 15 ~~any of claims 1-28~~.

33. (Amended) An artificial tissue producable by a method according to claim 1 ~~any of claims 1-14~~.

34. (Amended) An artificial tissue on a surface producable by a method according to claim 1 ~~any of claims 1-14~~.

35. (Amended) An artificial tissue producable by a method according to claim 15 ~~any of claims 1-28~~.

36. (Amended) An artificial tissue on a surface producable by a method according to claim 15 ~~any of claims 1-28~~.

37. (Amended) A combination of patterns of cells according to claim 29 ~~any of claims 29-32~~.

38. (Amended) A combination of artificial tissues according to claim 33 ~~any of claims 33-36~~.

OFFICE OF THE ATTORNEY GENERAL